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Acceptability of digital payment system throughout COVID-19 pandemic in Bangladesh: A comparative study between pre-pandemic and post-pandemic period

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Abstract
The COVID-19 pandemic extensively affects the world, particularly consumer payment patterns. Since, the lack of physical contact during the COVID-19 pandemic era, consumers' need for a substitute spending pattern has increased. People are required to utilize debit cards, credit cards, internet banking, and other mobile banking services as an alternative to physical transactions when they buy products online and make virtual payments. 2019 is known as a pre-pandemic period, therefore the study intends to scrutinize the impact of the COVID-19 pandemic on the use of digital payment methods in Bangladesh. This paper has focused on analyzing the average amount of transactions of each payment method that occurred during the pre-pandemic and post-pandemic period (2019-2021). The result of the study confirmed an insignificant impact of the COVID-19 pandemic on the use of digital payment methods in Bangladesh.

Keywords: COVID-19, Pandemic, Impact, Digital Payment System

Introduction

The COVID-19 pandemic is a worldwide crisis that radically changes the integral vibrant of the payment system as well as the whole financial circumstances of a country that in no way practiced before. This type of highly spreadable pandemic process affects social, monetary, and psychosomatic matters of people over the country as a whole. A strict prohibition in the daily movement causes both economic and social disturbance. Such a disruption confines people at home and makes them bound to absorb new ways of life and new technology. Moreover, in a developing country like; India, financial inclusion in the banking sector crafts a new era for economic enlargement. An increase in banks' credit deposit ratio contributes to eliminating the poverty gap which positively persuades the country's GDP level. Besides, it's essential to create user responsiveness, financial literacy course, e-banking guidance program, and guarantee financial inclusion parameters to access financial services (Iqbal & Sami, 2017).From March 2020 to December 2021Bangladesh has gone through several phases of the COVID-19 pandemic which has distress not only the health sector but also the economic and financial sectors as well. As the COVID-19 pandemic is a long process physicians have advised people to remain at home, and maintain home quarantine as much as possible to avert the diffusion of the infectivity. Because of the announcement of the lockdown and to adjust to such a predicament people started to use virtual media for communication, interrelation, and maintaining office work at home. To meet up daily necessities consumers' tastes have altered with online shopping.

During the COVID-19 period, a rapid change in people's lifestyles and purchase patterns has increased the number of new users in e-commerce. As a result, online shopping option has amplified that appreciably revolutionized the e-commerce sector. During this adversity, the use of information technology and networks worked as a blessing to ensure versatility in the education and financial arena. A variety of digital media like; debit cards, credit cards, internet banking, MFS, etc. are used as a substitute for the physical transaction. Extensive panic about being infected by the corona virus enforced people toward digitalization. During the COVID-19 period in 2020, the number of new users of digital media in Mangalore City in India has increased fast. Many respondents in this area showed a positive attitude toward using a variety of digital payment methods to carry out their daily activities. Along with diverse advantages, lack of user's proper knowledge, server and network issues, security troubles, and so on restricts people headed for using virtual media and the internet (Sowmya & Hebbar, 2020). According to the research by Musyaffiet.et al (2021), user's effort & performance anticipation and also individual innovativeness positively impact behavioral intent in using digital banking. During the pandemic process, the panic of making physical contact makes people adopt digital media. But in digitalization security matters and user expediency obstructs such acceptance. To resolve such troubles the study suggested the exercise of the UTAUT extension model with apparent safety and individual innovativeness which is the main concern to cope with the crises that arose during the COVID-19 pandemic. Agan (2020), notified in Turkey, that the progression of information technology and the global earth manipulates consumer culture and practice over time. Due to a lack of physical contact throughout the COVID-19 pandemic epoch consumers' requirement to search for an alternative spending pattern has been greater than before. An increase in buying products online and making virtual payment inflict people to espouse debit cards, credit cards, online banking, and other mobile banking services. In addition, an increase in credit card expenses significantly enhances a country's GDP level. Therefore, the findings of the study showed a dynamic relationship between economic development and financial services which is consistent with the study of Iqbal & Sami (2017) as they established that financial inclusion in the banking arena plays a decisive role in a country's economic growth. Throughout the pandemic epoch, the global financial outlook is almost identical for probable economic intensification. Because the COVID-19 pandemic period showed exceptional public concerns for cash payment. But most remarkably, public concern and preferences varied among countries (Zhang et.al, 2020). When the COVID-19 pandemic locked the whole world at home Bangladesh is no longer assorted from other countries. During this time the boom of the e-commerce sector around the world raises 70-80%online sales approximately than before. As a result, the e-commerce sector in Bangladesh expand swiftly and crossed Tk. 6000 crore. A variety of entrepreneurial organizations and about 4 lakh women entrepreneurs prefer social sites for selling their products (Abir, 2020). For a developing country like; Bangladesh, it is contradictory for a massive population to sustain social detachment by remaining at home and to meet up basic demands by residing at home. In that case, the question arises that during the corona crisis how can people meet up their necessities by staying at home? The widespread use of internet networks and the advancement of information technology make it easier for people to carry on with their daily lives while using a smartphone. This paper has focused on recognizing the impact of the COVID-19 pandemic on the use of digital payment systems in Bangladesh.

Related work

A crucial element for the efficient operation of the nation's financial system is the payment system, which serves as a conduit for money transfers between financial institutions, companies, and individuals (Bangladesh Bank, 2022).According to Borkar & Galande (2022),digital payments are those that are made utilizing the sender's and the receiver's respective electronic payment methods. The world is becoming more digitized now, whether it is through the digitization of credentials, the direct transmission of government

funds to individual bank accounts, or the use of digital currencies in place of actual cash. With the government's assistance, India has undergone a digitization shift over the past few years. The government's "Digital India" project encourages citizens to use digital payment methods for all kinds of transactions and advocates for a world free of cash. The study made an effort to concentrate on the numerous digital payment methods offered in India and appreciate the use of digital media in the country. Gade (2020), focuses on cashless transactions and the advantages of a cashless economy that has gained popularity in India during the pandemic period. The theoretical model explained whether India is ready to undertake the paradigm change from offline to online trading. The study suggested that a cashless India would be successful and supportive in the time of Covid-19 and that investments to correct structural anomalies should be prioritized over other measures. The shifts to digital payments increase transaction transparency, which boosts the nation's economy. For a smooth transition to digital payments, various improvements have been made recently to payment systems including digital wallets, UPI, and the BHIM app. The study examined the benefits of the payment system's digitalization and the extent to which customers have adopted these digital payment systems (Kavitha & Kumar, 2018).During the COVID-19 pandemic, a study on Vietnam signifies that currency is the easiest way for the virus to spread, it has become essential for residents of Vietnam to accept other means of payment as a result of the Covid-19 outbreak. The study inspected how determinants like; performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, habit, trust, and price-saving orientation affects behavioral intention and continuance usage of mobile wallet in the Covid-19 period. The findings demonstrate that all of the determinants except effort expectations and social influence have a positive connection, as expected (Ly, Khuong & Son, 2022).The researcher explores preferences concerning cash and non-cash payment as points of sale (POS) during the COVID-19 crisis using a survey of 5,504 respondents from 22 European nations. When a consumer feels that handling cash increases the risk of infectivity, they support cashless dealings. Variables such as; the convenience of cashless payments, the safety of cashless payments, the popularity of cashless payments, the ease of use of cashless technologies, and control over finance with cashless payments not only influence how payments are made now, but there have also been few announced plans to stop using cash once the pandemic is over. (Wisniewski, Polasik, Kotkowski & Moro, 2021).Malaysians' way of life has transformed due to the COVID-19 pandemic. During the COVID-19 outbreak, there was a significant increase in e-wallet transactions in Malaysia. There is disagreement on the causes of the e-wallet industry's explosive expansion. The findings support the notion that attitudes toward using e-wallets are positively correlated with perceived usefulness, government support, perceived risk, and social impact. The results of this study can assist policymakers in creating efficient plans to identify consumers' intentions to utilize electronic wallets during the COVID-19 epidemic. The study suggests the government boost incentives to hasten the development of a cashless society (Ming & Jais, 2022).The risk of the novel corona virus (SARS-Cov2) spreading through bodily fluids worries some people. They are transferred to the e-wallet. The research investigated consumer intentions to use e-wallets during the COVID-19 outbreak are influenced by perceived risk, government backing, and perceived utility. The result demonstrates that country-specific differences exist in the impact of government support on e-wallet intention. In addition, perceived utility partially and fully moderates the effect of perceived risk on the relationship between intention to use e-wallets as well as government support (Aji, Berakon & Husin, 2020).By adding a new dimension of fintech where e-wallets can be utilized along with mobile payments and payment systems have undergone a significant transformation. The TAM model was used to build the study's framework, and structural equation modeling was used to assess each hypothesis. The results showed how significantly these affect the continuity or user satisfaction of the e-wallet payment system. Based on earlier research, this study confirmed the development of e-payment was also suggested as a way to enhance the mobile payment system and raise customer satisfaction (Karim, Chowdhury & Haque, 2022).In Bangladesh, having

insufficient access to financial services is seen as a major obstacle to reducing poverty. Before COVID-19, digital innovations like; mobile banking did not receive the attention they deserved but have the potential to speed up people's access to money. According to research, the Covid-19 period has seen an increase in the number of registered mobile banking consumers. Government initiatives, particularly those of different mobile banking transactions like cash in, cash out, person-to-person (P2P) transfers, salary transfers, and utility bill payments, among others, have significantly increased the number of people who have access to digital financial services during this pandemic. The shifting consumer behavior toward digital purchases has also increased their financial leverage. To establish a cashless society across the nation, the government should offer a practical financial access platform (Khatun, Mitra & Sarker, 2021). Agan (2020), converses about how the Covid-19 pandemic has affected the financial banking sector. The study examines how digital payment systems responded to the Covid-19 pandemic process and establishes a causal relationship between GDP and credit card expenditure by demonstrating the increase in debit and credit card payments from 2019 to 2020.However, several banking customers are reluctant to accept internet banking as a means of conducting their financial transactions. Hence, the study explores the important determinants of customer satisfaction toward internet banking services in Bangladesh. The study found that service quality, security, and accessibility of internet banking services positively influence online banking customers' satisfaction (Jahan, Ali & Al Asheq, 2020).Numerous factors, including competitive costs, customer service, and demographic considerations, motivate banks to evaluate their technology and evaluate their electronic commerce, and Internet banking strategies. As of January 2018, internet banking has approximately 17.61 lakh users. Most of the users adopt internet banking for fund transfer operations. According to the statistical report of Bangladesh Bank, about 7.18 lakh transactions involving Tk. 2,175 crore were executed through the internet banking platform in January 2018 (Sarker, Podder & Alam, 2020).Mobile Financial Services (MFS) is playing an imperative role in achieving the target of' financial inclusion for all by 2024 by Bangladesh Bank. Nationwide advancements in connectivity, the rapid growth of mobile phone users, digitization of payment systems and IT-based financial systems, increased nationwide network coverage of mobile operators, and availability of the internet across the country has unleashed the potential for financial inclusion in MFS. As on June 30, 2020, a total of 14 banks and 1 subsidiary of the bank are allowed to provide MFS (Bangladesh Bank, 2021).

	Authors	Country	Time frame	Methods	Findings
1.	Karim, M. W., Chowdhury, M. A. M., &Haque, A. A. (2022).	Bangladesh	2022	TAM model, and Structural Equation Model	Revealed technology self-efficacy↑ Use of E-wallet Payment system↑ customer satisfaction↑
2.	Büşra, A. Ğ. A. N. (2020)	Turkey	2020	Granger causality test	COVID-19↑Use of digital payment method↑
3.	Borkar, D. S., &Galande, M. A.	India	2020	Descriptive study	government's assistance↑ Digitalization ↑ Numerous use of digital payment methods↑
4.	Kavitha, D., & Kumar, D. S. (2018).	India	2018	chi-square technique	Improvements in digital payment media ↑ customer's adoption of digital media↑

5.	Ly, H. T. N., Khuong, N. V., & Son, T. H. (2022).	Vietnam	2022	UTAUT model, Likert's five-scale method	performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, habit, trust and price-saving orientation ↑ behavioral intention ↑ continuance usage of mobile wallet ↑ Motivate mobile wallet adoption→ amplifying cashless society→ financial inclusion↑
6.	Wisniewski , T. P., Polasik, M., Kotkowski, R., & Moro, A. (2021).	Europe	2021	traditional logistic regression, Likert's five-scale method	COVID-19→habits of using cashless payment↑ The convenience of cashless payments, the safety of cashless payments, the popularity of cashless payments, ease of use of cashless technologies, and control over finance→ cashless payments →plans to stop using cash once the pandemic is ended.
7.	Ming, K. L. Y., &Jais, M. (2022).	Malaysia	2022	covariance-based structural equation modeling (CB-SEM), Google Forms	COVID-19→ consumer intentions ↑use of e-wallets ↑
8.	Khatun, M. N., Mitra, S., &Sarker, M. N. I. (2021).	Bangladesh	2021	documentation techniques, descriptive statistics	Covid-19 ↑mobile banking services ↑
9.	Aji, H. M., Berakon, I., &MdHusin , M. (2020).	Indonesia and Malaysia	2020	sampling technique, PLS-Structural Equation Modeling (SEM) approach	COVID-19→ consumer intentions ↑use of e-wallets ↑
10.	Gade, A. S. (2020).	India	2020	theoretical model, structural parameters	COVID-19→online trading↑ cashless transactions ↑
11.	Jahan, N., Ali, M. J., & Al Asheq, A. (2020).	Bangladesh	2020	Likert's five-scale method, descriptive statistics	service quality, security, and accessibility of Internet banking services↕ customer satisfaction↕
12.	Sarker, B., Podder, P., &Alam, R. (2020).	Bangladesh	2020	descriptive statistics	Competitive costs, customer service, and demographic considerations → bankers' appreciation↑ evaluation of technology regarding electronic commerce and Internet banking strategies. ↑ customer's satisfaction↑

(*Table-1 summarizes all the allied literature for indicating research gap of the study)

Research gap

Digital payment systems are more translucent rather physical transactions. In Bangladesh, during the COVID-19 pandemic, people are bound to skip physical transactions and admit cashless transactions which

may ensure the evolution of a fabulous economy in the next decades. After reviewing some related literature, it is clear that most researchers tried to analyze the impact of the COVID-19 pandemic on the digital payment system upon the multiplicity of primary variables, but this study inspects the measure of the explicit transaction amount to demonstrate and analyze whether the COVID-19 pandemic significantly changes payment pattern during the pandemic period in Bangladesh or not.

Research Methodology

This study is exploratory in nature and is based on secondary data mostly available on the Bangladesh Bank website, research articles, e-journals, online blogs, and newspapers. To evade physical transaction digital payment methods was the only choice during the COVID-19 pandemic period. The procedural aim of this study is to explore the impact COVID-19 pandemic on the use of digital payment media in Bangladesh compared pre-pandemic era. To actualize the authentic use of digital media this study consent to assemble monthly transaction data availed on the Bangladesh bank website from the period January 2019 to December 2021 concerning the debit card, credit card, prepaid card, e-commerce, internet banking, and MFS as independent variables. For better comparison, each year the average transaction data of digital media were used. After assembling data, the hypothesis has been recognized between independent and dependent variables. The t-test verifies whether a variable significantly impacts others. For that intention, a t-test has been conducted through the SPSS software to demonstrate a statistical comparison regarding the use of digital media in between before the COVID-19 period (2019) and during the COVID-19 period (2020 and 2021) to validate the general consequence of the proposed model.

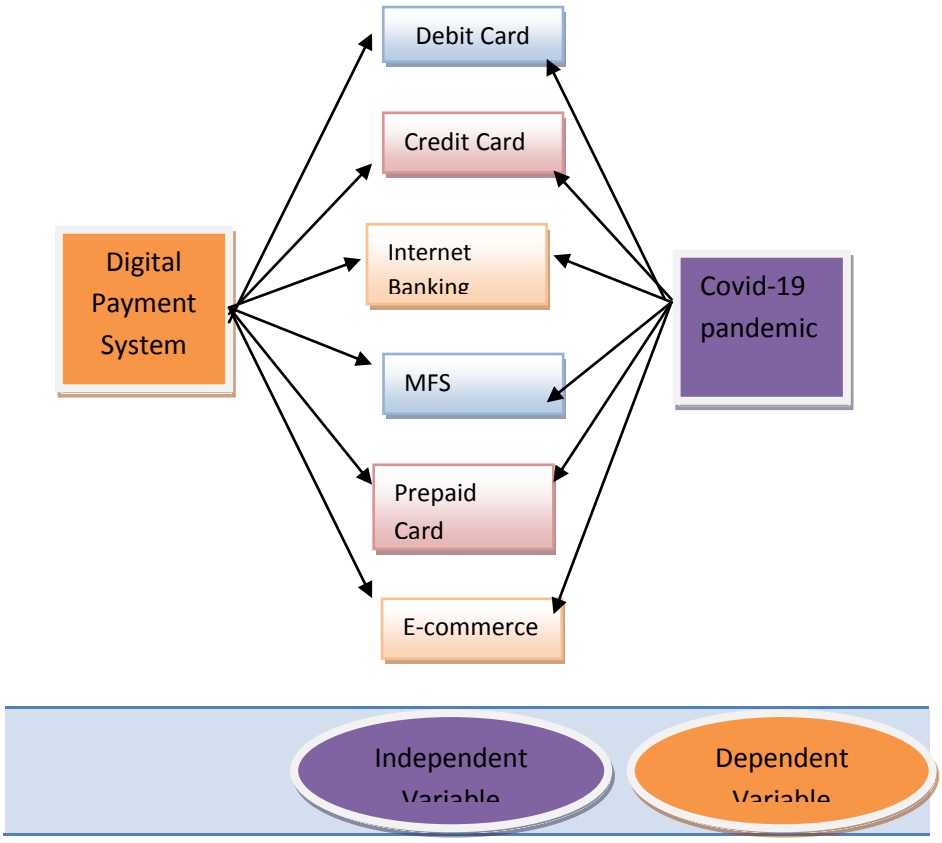

Figure-1: proposed research model

Data analysis

Mean Value	2019	2020	2021
Debit card	13927.88	14752.95	21603
Credit card	1119.992	1187.158	1778.017
Internet Banking	5490.317	6634.108	13052.94
MFS	36207.49	46801.9	64178.76
prepaid card	124.65	146.8167	193.325
e-commerce	196.3143	428.5197	851.2414

Table-2: Average value of each year's transaction data

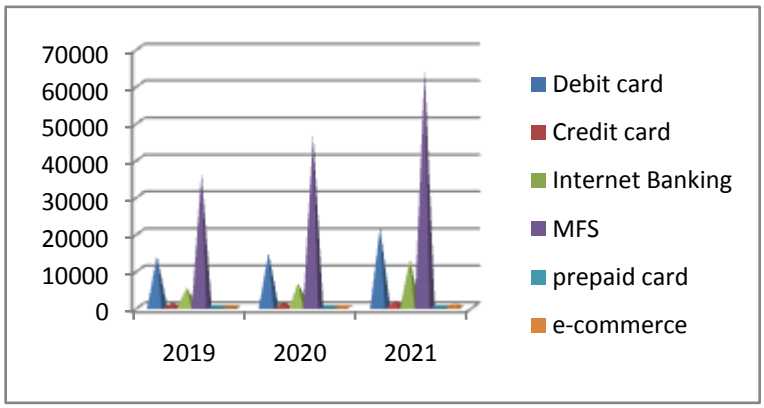

Figure 2: Graphical representation based on the mean value

Source: Authors' Calculations 2022

Table-2 symbolizes the mean value concerning transaction amounts of all independent variables. So, based on the mean value figure -2 represent the trends of the average amount of transactions that actually occurred during 2019-2021 in Bangladesh. It is clear from the graph that the use of digital payment media in 2020 and 2021 is in increasing trend compared to 2019. This graph concludes that in 2021 the transaction regarding MFS was 64178.76 (in million Tk.), internet banking was 13052.94 (in million Tk.) and the prepaid card was 193.325 (in million Tk.) changes appreciably in contrast to others.

Test of hypothesis1:

H_N. There have no significant difference exists in the use of digital payment methods between the pre-pandemic and post-pandemic period

H_A. There have a significant difference exists in the use of digital payment methods between the pre-pandemic and post-pandemic period

Table -3

Independent Samples Test(All Digital Payment Transaction-2019 & 2020)									
	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper

All Digital Payment methods	Equal variances assumed	5.977	.023	3.295	22	.003	12885.80709	3910.98468	4774.92128	20996.69289
	Equal variances not assumed			3.295	14.526	.005	12885.80709	3910.98468	4525.97515	21245.63903

Table -4

Independent Samples Test(All Digital Payment Transaction-2019 & 2021)										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
All Digital Payment methods	Equal variances assumed	4.990	.036	13.486	22	.000	44591.63039	3306.47290	37734.42529	51448.83550
	Equal variances not assumed			13.486	16.112	.000	44591.63039	3306.47290	37586.18375	51597.07703

Interpretation

According to Levene's test for equality of variances, the p-value (table-3) is .023, and (table-4) is .036 (i.e., p is very large) which indicates that the assumption of the equality of the two variances is fulfilled. This result shows that the p-value in both cases is more than the significant level of 5%. It infers that this result fails to reject the null hypothesis and consequently rejects the alternative hypothesis. Therefore the use of digital payment method in Bangladesh does not differ significantly in the pre-pandemic and post-pandemic periods. So we can say that there has no statistically significant difference exists in the use of digital payment methods between pre-pandemic and post-pandemic periods in Bangladesh.

Test of Hypothesis 2

H_{A1}. There have a significant difference exists in the use of the debit card between the pre-pandemic and post-pandemic period

H_{A2}. There have a significant difference exists in the use of credit cards between the pre-pandemic and post-pandemic period

H_{A3}. There have a significant difference exists in the use of internet banking between the pre-pandemic and post-pandemic periods

H_{A4}. There have a significant difference exists in the use of the prepaid card between the pre-pandemic and post-pandemic periods

H_{A5}. There have a significant difference exists in the use of e-commerce between the pre-pandemic and post-pandemic period

H_{A6}. There have a significant difference exists in the use of MFS between the pre-pandemic and post-pandemic period

Table -5

Independent Samples Test (All Variables Transaction-2019 & 2020)										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Debit Card	Equal variances assumed	4.999	.036	.901	22	.377	826.06667	917.06040	-1075.80020	2727.93354
	Equal variances not assumed			.901	14.500	.382	826.06667	917.06040	-1134.48479	2786.61812
Credit card	Equal variances assumed	7.090	.014	.677	22	.505	67.16667	99.14442	-138.44627	272.77961
	Equal variances not assumed			.677	13.613	.509	67.16667	99.14442	-146.04489	280.37822
Prepaid card	Equal variances assumed	1.913	.180	1.901	22	.071	22.16667	11.66333	-2.02160	46.35493
	Equal			1.90	15.928	.07	22.	11.	-	46.

	variances not assumed			1		6	16667	66333	2.56754	90087
E-commerce	Equal variances assumed	21.017	.000	5.328	22	.000	232.20000	43.57719	141.82645	322.57355
	Equal variances not assumed			5.328	12.366	.000	232.20000	43.57719	137.56444	326.83556
Internet banking	Equal variances assumed	.006	.939	2.979	22	.007	1143.79167	383.96223	347.50273	1940.08060
	Equal variances not assumed			2.979	21.940	.007	1143.79167	383.96223	347.37648	1940.20685
MFS	Equal variances assumed	8.000	.010	3.822	22	.001	10594.41000	2771.96530	4845.70583	16343.11417
	Equal variances not assumed			3.822	13.709	.002	10594.41000	2771.96530	4637.27147	16551.54853

Interpretation

According to Levene's test for equality of variances, the p-value (table-5) in the case of debit cards is .036, credit card is .014, the prepaid card is .180, e-commerce is .000, internet banking is .939 and MFS is .010. This result shows that the p-value regarding debit cards, credit cards, prepaid cards, and internet banking is more than the significant level of 5%. It infers that this result fails to reject the null hypothesis and consequently rejects the alternative hypothesis. But in the case of e-commerce, the p-value is .000 which is very smaller than the significant level of 5%. Thus, here we fail to reject the alternative hypothesis. Therefore the use of digital payment methods likes; debit cards, credit cards, internet banking, prepaid card, and MFS does not differ in the pre-pandemic and post-pandemic periods except for e-commerce. Hence, we can say that there has no statistically significant difference exists in the use of digital payment methods (debit card, credit card, internet banking, prepaid card, and MFS)in the pre-pandemic and post-pandemic period in Bangladesh. But exceptionally we have found a significant difference exists in the use of e-commerce between the pre-pandemic and post-pandemic period in Bangladesh.

Table -6

Independent Samples Test (All Variables Transaction 2019 & 2021)		
	Levene's Test for	t-test for Equality of Means

		Equality of Variances								
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Debit Card	Equal variances assumed	1.543	.227	12.228	22	.000	7676.11667	627.75191	6374.23889	8977.99445
	Equal variances not assumed			12.228	18.957	.000	7676.11667	627.75191	6362.01311	8990.22023
Credit card	Equal variances assumed	7.031	.015	8.580	22	.000	658.02500	76.68989	498.97991	817.07009
	Equal variances not assumed			8.580	15.600	.000	658.02500	76.68989	495.11060	820.93940
Prepaid card	Equal variances assumed	.031	.862	9.235	22	.000	68.67500	7.43645	53.25274	84.09726
	Equal variances not assumed			9.235	21.924	.000	68.67500	7.43645	53.24964	84.10036
E-commerce	Equal variances assumed	8.551	.008	11.609	22	.000	654.92500	56.41345	537.93066	771.91934
	Equal variances not assumed			11.609	11.797	.000	654.92500	56.41345	531.77601	778.07399
Internet	Equal	23.4	.00	6.50	2	.000	7562.	1163.	5149.9	9975.25

banking	variances assumed	53	0	1	2		62500	34464	9589	411
	Equal variances not assumed			6.501	12.194	.000	7562.62500	1163.34464	5032.37738	10092.87262
MFS	Equal variances assumed	2.555	.124	16.055	22	.000	27971.26167	1742.16342	24358.23587	31584.28747
	Equal variances not assumed			16.055	18.470	.000	27971.26167	1742.16342	24317.77521	31624.74812

Interpretation

According to Levene's test for equality of variances, the p-value (table-6) in the case of debit cards is .227, the credit card is .015, the prepaid card is .862, e-commerce is .008, internet banking is .000 and MFS is .124. This result shows that the p-value regarding debit cards, credit cards, prepaid cards, and e-commerce is more than the significant level of 5%. It infers that this result fails to reject the null hypothesis and consequently rejects the alternative hypothesis. But in the case of internet banking, the p-value is .000 which is very smaller than the significant level of 5%. So here we fail to reject the alternative hypothesis. Therefore the use of digital payment methods likes; debit cards, credit cards, prepaid cards, e-commerce, and MFS does not differ in the pre-pandemic and post-pandemic periods except for internet banking. So we can say that there has no statistically significant difference exists in the use of digital payment methods (debit card, credit card, e-commerce, prepaid card, and MFS) in the pre-pandemic and post-pandemic period in Bangladesh. But exceptionally we have found a significant difference exists in the use of internet banking between the pre-pandemic and post-pandemic periods in Bangladesh.

Conclusion

During the COVID-19 pandemic in Bangladesh, more transactions occurred via ATMs rather than bank counters. This situation suggested that Bangladesh's banking industry needs to wake up to find alternative ways of reaching their remote clients and promoting their digital technology to enhance operational competence in the near future. There are two prominent payment methods available in e-commerce, one is an online payment and another is MFS. As it was intricate to go outside of our home and bank's limited working hours by using MFS apps people can easily make their utility payments. As a digital wallet through MFS accounts people received their salaries, wages, and other Government allowances during this time. The government of Bangladesh provided instruction to factory owners to take a loan from banks and pay out wages and salaries among employees via bank accounts or MFS accounts. To reduce cash dependence besides MFS, banks played a vital role in the process of digitalization by issuing debit and credit cards also. Thus, during the COVID-19 pandemic era in Bangladesh, it was essential to amplify financial inclusion. Along with many troubles in using digital media, the COVID-19 pandemic process may step up the digital journey of Bangladesh that had not started in 2008 (Islam et.al 2022). This study founds insignificance in

the use of digital payment methods between pre-pandemic and post-pandemic periods. This study also found future potential regarding the use of e-commerce and internet banking systems in Bangladesh. Due to improper ideas concerning e-services, lack of trust and technological barriers may hamper the progression of the digital payment system in Bangladesh. Such barriers may turn into a new prospect for future advancement. The study concludes that ensuring 'Digital Bangladesh' is not a one-sided effort. Banks, aware people, and Government have to take the initiative and seize the pandemic period as a chance to mount 'Digital Bangladesh'. Government should take initiatives to generate awareness among people so that they become competent to use digital payment methods. This paper affirmed that the benefits of using a digital payment system are greater in number which may assist to build up 'Digital Bangladesh'.

Limitation and scope for future studies

This research paper has a few limitations. At first, lack of getting monthly transaction data of digital payment methods throughout the pre-pandemic period. As a result, the sample size of this paper is selected as tiny because of data constraints, further study should be carried out with an enlarged sample size to acquire superior results. Secondly, the study is based on only six dimensions of digital payment methods. Other methods of digital payment systems can also be included in future research. Thirdly, the unavailability of exact information on the websites and the bank's official publication also restricts and edges the decorum of the consequence. In future studies, the researchers may comprise other required information concerning digital payment methods to ensure the accuracy of the result. Besides these confines, this study has exposed important findings and contributed significantly to the intensity of research knowledge about the significance of using digital payment methods toward the digitalization of Bangladesh.

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Appendix

Year	Month	Transaction amount in BDT crore						
		Debit Card	**Credit Card**	**Prepaid Card**	**E-commerce**	**Internet Banking**	**MFS**	**All Digital Payment**
2021	December	24357	2229	215	824.7951	20558.9	71173.09	119357.7851
2021	November	23178.5	2092.4	200.6	800.2896	17009.4	67958.96	111240.1496
2021	October	23126.3	1964.3	201.2	743.002	15558.3	67582.24	109175.342
2021	September	22522.2	1839.7	199	778.1315	16862.6	65135.06	107336.6915

2021	August	20934.8	1674.4	179.5	776.1719	15281.3	62230.24	101076.4119
2021	July	21783.9	1486.6	226.6	741.6945	12768.8	66387.45	103395.0445
2021	June	21698.8	1934.9	191.7	1277.424	10452	62993.93	98548.75438
2021	May	22452	1708.4	210.9	1183.602	11384.4	71246.88	108186.1815
2021	April	20248.5	1534.6	173.6	911.1886	9367.8	63478.85	95714.53861
2021	March	22000.3	1783.2	180.8	854.786	10371.1	59642.41	94832.59598
2021	February	18063.5	1509.3	165.5	663.4486	8477.3	55059.25	83938.29863
2021	January	18870.2	1579.4	175.5	660.3626	8543.4	57256.7	87085.56261
2020	December	18795.6	1560.9	167.8	597.4615	8092.6	56556.88	85771.24148
2020	November	17332.6	1434.1	158	530.6152	7994.5	53598.31	81048.12519
2020	October	16529.2	1381.2	179.4	543.097	6286.7	53258.84	78178.43699
2020	September	15211.1	1220.2	141.4	406.0389	7006.8	49121.25	73106.78889
2020	August	13202	1551.9	108.3	488.9317	6800.1	41403.82	63555.05169
2020	July	18123.6	1252.4	199.1	640.3502	6254.9	62999.42	89469.77023
2020	June	12528.1	898	140.3	491.424	7421.1	44830.66	66309.58398
2020	May	11795	713.9	134.6	449.4686	5531.7	47601.28	66225.9486
2020	April	8335.7	523	62	254.4464	4664.4	29029.14	42868.68638
2020	March	15136.7	1135	146.1	224.0368	6588	39785.23	63015.06678
2020	February	14776.3	1218.2	142.7	247.0785	6298.9	41334.79	64017.96847
2020	January	15269.5	1357.1	182.1	269.288	6669.6	42103.22	65850.80798
2019	December	15183.7	1339.7	140.8	262.0611	6063	40647.64	63636.90108
2019	November	13713.2	1195.5	133.5	265.0647	5256.5	37918.86	58482.62466
2019	October	14171.8	1180.8	127.7	210.991	5635.2	37762.54	59089.031
2019	September	13273.9	1006.4	127.4	195.3465	5364.9	35433.16	55401.1065
2019	August	15070.5	1035.5	146.6	177.0451	4646	35512.56	56588.20514
2019	July	14040.5	1048.1	140.6	210.5954	7421.6	37477.58	60338.97543
2019	June	12635.3	1135.4	117.8	169.8744	4956.6	31708.38	50723.35439
2019	May	16622.7	1263.7	145.5	187.3894	6893.1	42236.23	67348.61937
2019	April	13475.7	1097.7	107	168.8218	5059.3	34975.76	54884.28177
2019	March	13169.6	1088.6	103.9	169.9561	5504	34678.37	54714.42614
2019	February	12520.6	934.9	94.2	145.1372	4295.5	31512.6	49502.93724
2019	January	13245.1	1113.6	110.8	193.4889	4788.1	34626.24	54077.32889

Table 7: Transaction amount used in SPSS for digital payments (2019-2021)